

What is claimed is:

1. An audio signal processor processing an audio signal for changing a format distributable through a network, which comprising:

5 embedding means for embedding in said audio signal a watermark of which a signal level audible to the human sense of hearing when the audio signal is played back.

2. The audio signal processor according to claim 1, which further comprising:

10 a compressor for compressing said watermark embedded audio signal according to a specific method, said compressor provided after said embedding means.

3. The audio signal processor according to claim 1, which further comprising:

15 a compressor for compressing said watermark embedded audio signal according to a specific method, said compressor provided before said embedding means.

20 4. The audio signal processor according to claim 1, which comprising:

watermark signal generator for generating a watermark using said audio signal alone that is inputted into said watermark signal generator, said generator provided in said embedding means.

25 5. An audio player playing back an audio signal distributed through a network, which comprising:

removing means for removing a watermark from a watermark

embedded audio signal using a specific key, said watermark of which a signal level is audible to the human sense of hearing.

5 6. An audio distribution system including a distribution apparatus for distributing an audio signal through a network and an audio player for playing back said distributed audio signal,

10 wherein said distribution apparatus comprises embedding means for embedding in said audio signal a watermark of which a signal level is audible to the human sense of hearing when the audio signal is played back; and

wherein said audio player comprises removing means for removing a watermark from said watermark embedded audio signal using a specific key.

15 7. An audio distribution method wherein a sending side process an audio signal for changing the format distributable through a network and a receiving side plays back said audio signal, which comprising:

20 embedding a watermark in said audio signal at the processing, said watermark of which a signal level is audible to the human sense of hearing when the audio signal is played back ; and

removing a watermark from said watermark embedded audio signal using a specific key at the playback.

25 8. An audio signal processor for processing an audio signal for changing the format distributable through a network, which comprising:

a separator for separating said audio signal according to a specific rule;

embedding means for embedding a key as a watermark in at least a

specific audio signal of said separated audio signals; and

encryption means for encrypting an audio signal other than said separated audio signals in which said watermark is embedded.

5           9. An audio player playing back an audio signal distributed through the network, which comprising:

extracting means for extracting a second key embedded as a watermark from a specific area within said audio signal using a first key; and

10           a decoder for decrypting an encrypted area within said audio signal using said second key extracted by said extracting means.

10. An audio signal processor processing an audio signal for changing the format distributable through a network, which comprising:

15           a band separator for separating said audio signal into a plurality of frequency band signals having a specific frequency band respectively;

embedding means for embedding a key as a watermark in a specific frequency band signal having the specific frequency band of said plurality of frequency band signals; and

20           a high quality sound part encryptor for encrypting a frequency band signal other than said plurality of frequency band signals in which said watermark is embedded.

25           11. An audio player playing back audio signal distributed through a network, which comprising:

extracting means for extracting a second key embedded as a watermark from a band signal having a specific frequency band within said audio signals using a first key; and

a high quality sound part decoder for decrypting a encrypted frequency band signal having specific frequency bands within said audio signals using said second key extracted by said extracting means.

5           12. An audio signal processor processing an audio signal for changing the format distributable through a network, which comprising:

a scalable compressor for separating the audio signal into a basic part and a enhanced part using the method of scalable compression;

10           embedding means for embedding a key as a watermark in either the basic part or the enhanced part; and

an encryptor for encrypting using a specific key either the basic part or the enhanced part whichever said watermark is not embedded in.

15           13. An audio player for playing back an audio signal distributed through a network, which comprising:

extracting means for extracting a second key, using a first key, embedded as a watermark from either said basic part or said enhanced part within said audio signal which is compressed by scalable compression and encrypted; and

20           a decoder for decrypting, using said second key extracted by said extracting means, either the basic part or the enhanced part whichever said watermark is not embedded in.

25           14. An audio distribution system including a distribution apparatus for distributing an audio signal through a network, and an audio player playing back said distributed audio signal,

wherein said distribution apparatus comprises:

a separator for separating said audio signal according to a specific

rule,

embedding means for embedding a first key as a watermark in a specific audio signal of said separated audio signals;

5 encryption means for encrypting a audio signal other than separated audio signals in which said watermark is embedded; and

wherein said audio player comprises:

extracting means for extracting said first key embedded as a watermark in said specific signal, using said second key; and

10 a decoder for decrypting the audio signal in which watermark is not embedded, using said first key extracted from said extracting means.

15 15. An audio distribution method wherein a sending side processes an audio signal for changing the format distributable through a network, and a receiving side plays back said audio signal, which comprising:

in the processing,

separating the audio signal according to a specific rule;

embedding a first key as watermark in a specific audio signal of said separated audio signals;

20 encrypting the audio signal other than said separated audio signals in which said watermark is embedded; and

in the playing back,

extracting said first key embedded as a watermark in said specific signal using said second key; and

25 decrypting the audio signal, in which said watermark is not embedded, using said extracted first key.

16. An audio signal processor processing an audio signal for changing to the format distributable through a network, which comprising:

noise parameter generator for generating a noise parameter for producing a noise;

noise generator for producing a noise signal on the basis of the noise parameter generated by said noise parameter generator;

5 a amplifier for amplifying said noise signal to a signal level audible to the human sense of hearing when the signal is played back;

a first adder for adding to said audio signal said noise signal amplified by said amplifier;

10 a watermark signal generator for generating a watermark signal with the noise parameter as a watermark using a key; and

a second adder for adding said watermark signal generated by said watermark signal generator to an audio signal to which noise signal is added by said first adder.

15 17. An audio player playing back an audio signal distributed through a network, which comprising:

watermark signal extracting means for extracting a noise parameter for producing a noise signal using a specific key, said noise parameter contained as a watermark in said audio signal;

20 a noise generator for generating a noise signal on the basis of said extracted noise parameter;

an amplifier for amplifying said noise signal a specific number of times and reversing the amplitude; and

25 an adder for adding to said audio signal a noise signal that is amplified a specific number of times and of which the amplitude is reversed.

18. An audio signal processor processing an audio signal for

changing to the format distributable through a network, which comprising:

watermark embedding means for embedding music ID information as a watermark in an audio signal, said music ID information specifying said audio signal; and

5 encryption means for encrypting said audio signal embedded with the watermark.

19. An audio player playing back an audio signal distributed through a network, which comprising:

10 a decoder for decrypting said encrypted audio signal;

watermark extracting means for extracting music ID information contained as a watermark in said decrypted audio signal, said music ID information specifying said audio signal;

15 a noise generator for generating noise signal to degrade said audio signal;

an adder for adding said decrypted audio signal and the noise signal generated by said noise generator; and

20 a switch for turning on or off the inputting of said noise signal to said adder in a result that a specific key corresponding to said extracted music ID information is present or not.

20. An audio signal processor processing an audio signal for changing to the format distributable through a network, which comprising:

25 watermark embedding means for embedding as a watermark a music ID information in said audio signal, said music ID information including information for specifying said audio signal and indicating permissible numbers of sample playback; and

encryption means for encrypting said audio signal embedded with a

watermark.

21. An audio player playing back an audio signal distributed through a network, which comprising:

5 a decoder for decrypting said encrypted audio signal;

a watermark extracting means for extracting an music ID information contained in said decrypted audio signal as an watermark, said music ID information including information for specifying said audio signal and indicating permissible numbers of sample playback;

10 a storage for storing said extracted music information associating said information specifying said audio signal and said information indicating permissible numbers of sample playback; and

15 a counter for deciding whether the decrypted audio signal is played back or not in a result that a specific key corresponding to the extracted music ID information is present or not and what the numbers of sample playback indicates.